

Appl. No.: 10/821,385
Amdt. Dated: 03/01/2006
Off. Act. Dated: 12/01/2005

Amendments to the Specification:

Please replace paragraph [0013] with the following amended paragraph:

[0013] Similarly, in a mobile wireless network system, such as a home wireless network, the occurrence of multipath propagation may cause the perceived signal strength information at one wireless network communication device to fluctuate greatly as a result of the slightest movement of the node or changes in the surroundings such as movement of obstacles in the line of sight. The fluctuation in signal strength makes it difficult to determine the location of one wireless network communication device relative to the other wireless devices in the wireless network.

Please replace paragraph [0016] with the following amended paragraph:

[0016] The invention provides a data processing apparatus and method for optimizing network data processing between [[two]] wireless network communication devices networks. The present invention generally allows the detection of a mobile wireless network device relative to other wireless network communication devices networks in a wireless network system such as a home wireless network system.

Please replace paragraph [0045] with the following amended paragraph:

[0045] FIG. 4 illustrates a network system 300 having a mobile wireless network device 310 that is in motion with respect to a wireless network device 320 placed within a predetermined range. The predetermined range preferably approximating the distances within a given room, or vicinity (i.e. residential home environment) within which media devices are communicating over the wireless network, for example within about ten to thirty feet. From this initial state, the mobile wireless network device 310 can move towards, for example, the non-mobile wireless network devices 320, 330, 340

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and 350 so that the distance between the devices reduces. For example the distance between the mobile wireless network 310 and the stationary wireless network device 320 may be reduced to about six feet. In this range, the signal strength between the wireless network communication device 310 and the wireless network communication device 320 may be approximately 150 dBm. Within the present invention, the signal strength in decibels, which is carried in the communication frames, can be considered to be inversely proportional to the distance, and utilized as a representation of inverse distance. For example, the signal strength detected between wireless network device 310 and wireless network device 320 can be preferably utilized to represent the inverse of distance metric, or as an input for calculating distance vectors between the devices within the wireless network. It should be appreciated that divisions, as per an inverse, are performed in the logarithmic decibels scale as subtractions. The signal strength value in dBm can be subtracted from an estimated (i.e. selected typical case value such as 200 dBm) or actual base line proximal signal strength value (i.e. determined by sweeping the device proximal to the receiver and registering the signal strength), thus calibrating the unit with a base line proximal distance signal strength.

Please replace paragraph [0047] with the following amended paragraph:

[0047] Motion monitoring module 410 monitors the signals transmitted from a mobile wireless network device to the wireless network system to determine the signal strength between the mobile wireless network device and a receiving wireless network. The proximity motion detection method of the invention is implemented within one or more [[or]] of the wireless network devices communicating on the wireless network system.

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Please replace paragraph [0050] with the following amended paragraph:

[0050] FIG. 6 is a depiction of vector distance representation for an example wireless network. The wireless network is shown containing multiple wireless network devices, exemplified as network devices A - E. Each dot in FIG. 5 FIG. 6 represents a wireless network point (x, y, z) within a three-dimensional system of coordinates allowing each of the wireless network devices to be mapped (represented). In one embodiment of the present invention, the (x, y, z) coordinate system is generated in response to a matrix of distances between each of the wireless network devices A - E. It will be appreciated that given any three points and their corresponding distances (or signal strengths) a two-dimensional coordinate system in a two-dimensional plane is created to represent the motion of the wireless network devices, for example considering points representing wireless network devices A, B and C. Alternatively, given any four points and their corresponding distance, a three-dimensional coordinate system in three-dimensional space can be created.

Please replace paragraph [0053] with the following amended paragraph:

[0053] The above example is configured as a motion sensor for detecting movement vectors of stylus WND 730 in relation to WNA 710, WNB 720, and WND 740. It should be noted that the location and distance of WNA 710 and WNB 720 are relatively fixed and can provide reference information. In addition, when new wireless devices come into, or go out of range, the coordinates and positions of all devices can be recalibrated. The sensor system therefore can provide determinations of direction, distance, and speed for WND 730. In this example if WND 730 is moving from WNC 740 towards WNB 720, with the prediction of the source and the target wireless networks network devices, the system could have the two wireless networks network devices interact with each other. For example, the image in the WNC 740 could be dragged into the WNB

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720. It should be recognized that the above technique can support motion based user input within a number of applications.